

**Date:** April 17, 2012

**To:** Thomas J. Bonfield, City Manager  
**Through:** Theodore L. Voorhees, Deputy City Manager  
**From:** Marvin G. Williams, Director of Public Works  
**Subject:** Contract Amendments for Repaving Projects

### **Executive Summary**

The extent of the deterioration of city streets is far worse than had been anticipated at the start of the 2011 repaving season. During recent efforts to perform repairs, Public Works Street Maintenance Division has had to excavate as deep as 18" to adequately make pavement repairs prior to resurfacing. These types of repairs are occurring at locations citywide and are driving up the overall costs of street repaving. Additionally, the cost of petroleum-based products such as binder and liquid asphalt has escalated significantly over the past year. All the City repaving contracts allow for price increases in the cost of materials which is a common practice for this type of work.

The approval of a separate budget ordinance amendment included with this agenda provides additional 2010 street repaving funds and supports proposed contract amendments to complete this project. There are currently four repaving contracts using 2010 repaving bond funds, and one contract currently funded with 2007 general obligation bond funds. In order to complete the published repaving schedule, the Administration recommends that the City Council authorize the City Manager to amend Contract ST-250 with Barnhill Contracting Company; Contract ST-251 with Rea Contracting Company; Contract ST-252 with Triangle Grading and Paving; Contract ST-253 with Fred Smith Company; and Contract ST-234 with Triangle Grading and Paving.

To further support this repaving effort, the staff of Public Works Street Maintenance Division will use overtime hours to assist with patching and other paving preparation work at a reduced cost to that of the contractors. The existing funding, plus the new funding being added with this agenda item and the companion agenda item mentioned above, is forecast to be sufficient to complete all the streets rated very poor and poor on the published repaving schedule. It should be noted, however, that should significant price escalations continue, or unknown pavement conditions continue to worsen, some of the original paving list may need to be deferred to a later paving contract. Accordingly, Public Works will annotate the repaving schedule to place a note to this effect on the final 5-10% of the list.

### **Recommendation**

The Administration recommends that the City Council:

1) Authorize the City Manager to execute an amendment to Contract ST-250 – 2011 Street Repairs and Repaving with Barnhill Contracting Company, Inc. increasing the contract amount by \$683,126.10 for a revised total contract amount of \$6,099,378.30;

2) Authorize the City Manager to execute an amendment to Contract ST-251 – 2011 Street Repairs and Repaving with Rea Contracting Company, Incorporated increasing the original contract amount by \$730,000.00 for a revised total contract amount of \$4,793,220.00;

3) Authorize the City Manager to execute an amendment to Contract ST-252 – 2011 Street Repairs and Repaving with Triangle Grading and Paving, Inc. increasing the original contract amount by \$ 2,011,712.50 for a revised total contract amount of \$6,035,137.50;

4) Authorize the City Manager to execute an amendment to Contract ST-253 – 2011 Street Repairs and Repaving with Fred Smith Company increasing the original contact amount by \$1,633,553.50 for a revised total contract amount of \$5,800,913.50;

5) Authorize the City Manager to execute an amendment to Contract ST-234 – 2009 Street Resurfacing with Triangle Grading and Paving, Inc., increasing the contract amount by \$630,848.00 for a revised total contract amount of \$7,117,693.94; and

6) Authorize the use of approximately \$150,000.00 from the 2010 repaving bond funds for Public Works Street Maintenance material purchases and use of overtime to help accomplish the repaving work.

### **Background**

Voters approved \$20 million in repaving bonds in November of 2010. Initially, the City had awarded four repaving contracts of just over \$4 million each, for a total of just over \$16 million. The remaining \$4 million was to have served as a contingency with hopes of paving additional streets.

Unfortunately, two factors are negatively impacting the repaving project. The extent of the deterioration of city streets is far worse than had been anticipated. Street Maintenance in some cases has had to excavate as much as 18" deep to adequately make pavement repairs. These repair costs are driving up the cost of street repaving. Additionally, the cost of petroleum-based products such as binder and liquid asphalt has escalated significantly (22%) over the past year. All the City repaving contracts allow for price increases in the cost of materials which is a common practice for this type of work. The combined impact of price escalations and poorer street conditions than anticipated necessitates that contingency funds, along with new funds, be added to the existing contracts to complete the project as originally published.

The existing funding plus the new funding being added with this agenda item is forecast to complete all the very poor and poor rated streets on the published repaving list. It should be noted, however, that should significant price escalations continue, or unknown pavement conditions continue to worsen, some of the original paving list may need to be deferred to a later paving contract. Accordingly, Public Works will annotate the repaving schedule to place a note to this effect on the final 5-10% of the list.

Repaving Contract ST-250 was originally awarded by the City Council on February 21, 2011 to Barnhill Contracting Company, of Raleigh, North Carolina for \$4,066,252.20. Contract ST-250 was amended by the City Council on June 20, 2011 to Barnhill Contracting Company, of Raleigh, North Carolina by \$1,350,000.00 for a total adjusted contract total of \$5,416,252.20 to reconstruct Revere Road. The Administration recommends that Contract ST-250 – 2011 Street Repairs and Repaving with Barnhill Contracting Company, Inc. be

amended by \$683,126.10. This represents a 12.6% increase over the \$5,416,252.20 previously authorized expenditure to facilitate repaving activities for a total contract amount of \$6,099,378.30.

Repaving Contract ST-251 was awarded by the City Council on February 21, 2011 to Rea Contracting Company of Raleigh, North Carolina for \$4,063,220.00. In an effort to finish the entire two-year project in one repaving season, Rea Construction Company expedited repaving efforts during the 2011 paving season. Their intention was to complete twice the amount of paving required by the contract for the 2011 paving season. The progress of Rea is tracked by daily reports entered into the Primavera software program. The pace of paving in Rea's final month, October 2011 was twice the effort of previous months. Rea fell behind in entering the daily reports for the month of October, and the Public Works project management team did not discover the issue until the first of November. As the missing reports were entered, the magnitude of paving became known, and the Public Works project management realized Rea had doubled production and far exceeded the previous month's efforts. Upon analysis of the final tally, it was determined that Rea had exceeded the original dollar value of the contract, \$4,063,220.00 by approximately \$730,000.00. The work in place is of a good quality. To rectify the situation, additional 2010 bond funds need to be added to the contract to pay for work already completed.

Repaving Contract ST-252 was awarded by the City Council on February 21, 2011 to Triangle Grading and Paving, Inc. of Burlington, North Carolina for \$4,023,425.00. The Administration recommends that Contract ST-252 – 2011 Street Repairs and Repaving with Triangle Grading and Paving, Inc. be amended by \$2,011,712.50. This represents a 50% increase over the \$4,023,425.00 previously authorized expenditure to facilitate repaving activities for a total contract amount of \$6,035,137.50.

Repaving Contract ST-253 was awarded by the City Council on February 21, 2011 to Fred Smith Company of Raleigh, North Carolina for \$4,167,360.00. The Administration recommends that Contract ST-253 – 2011 Street Repairs and Repaving with Fred Smith Company be amended by \$1,633,553.50. This represents a 39% increase over the \$4,167,360.00 previously authorized expenditure to facilitate repaving activities for a total contract amount of \$5,800,913.50.

Repaving Contract ST-234 was awarded by the City Council on June 15, 2009 to Triangle Grading and Paving, Incorporated in the amount of \$6,161,845.94, and an amendment was approved by City Council on September 7, 2010 for a total adjusted contract amount of \$6,486,845.94. The Administration recommends increasing ST-234 by \$630,848.00. This represents an increase of 10% over the previously authorized expenditure for a total contract amount of \$7,117,693.94.

### **Issues and Analysis**

In some cases streets that were rated in Fair condition in the 2007 ITRE study, but over the last 5 years had deteriorated, were repaved. Overall, the amount of patching prior to repaving exceeded original estimates. A primary factor is the cost of asphalt has risen. The contracts include an escalation clause that sets the cost of asphalt to market values. This removes some of the risk from the contractor and allows them to provide a price focused around their labor effort. The overall shortfall in street completion is due to two factors. Those factors are an increase in the cost of the liquid asphalt binder component, and the contractors placing a 1.75 inch layer of pavement that is a ¼ inch thicker than the ideal of 1.5 inches.

The cost for the liquid asphalt binder component of the work completed during 2011 came in \$793,700 over the budget of \$3,616,200, a 22% increase. This cost of binder is indexed to the world-wide oil market and the index used in our contracts is published on the NCDOT website. Based on the price of oil in February 2012 the adjusted cost of binder is at its highest point, \$657.67 per ton versus the low point of \$589 per ton (ST-253) last October. According to leading news sources, gasoline costs during 2012 are projected to be in the \$4 to \$5 per gallon range and the current price is approximately \$3.76 per gallon. As a result, the amount that binder costs will very likely exceed the budget during the 2012 paving season and is expected to substantially exceed the prior year.

Asphalt core samples taken during last paving season showed that the average thickness of new pavement applied was 1.78 inches as opposed to the minimum allowable thickness of 1.5 inches. Had the installed thickness been closer to the minimum required, the contractors might have paved 15% more street-miles last year. Public Works will be monitoring this more closely, and use a different asphalt mix with a 1" minimum thickness where possible. However, some streets will continue to require more than the minimum to provide a smooth ride and repair surface defects.

Alternative paving methodologies are being explored to determine if their use will allow more streets to be repaved. These methodologies will use a thinner paving layer. The standard used to date places a 1.5" layer. These alternative methodologies use a thinner 1" or 5/8" layer. Their use requires the existing pavement to be in a less deteriorated condition. Public Works staff is inspecting all remaining streets to determine which streets are good candidates for the alternative layers. Use of a thinner layer is less costly and therefore allows our limited dollars to go further.

### **Alternatives**

City Council can choose to not approve the contract amendment for ST-251 with Rea, but that will present contractual complications as the work has already been completed. Approval of this contract will allow the City to compensate Rea for work in place that is of good quality.

For the remaining four contracts, ST-250, ST-252, ST-253 and ST-234, City Council may choose not to move forward with the contract amendments to complete the repaving as originally published. This will defer many streets to a future repaving contract. It is likely that continued deterioration and price escalations will cause those repaving projects to cost more in the future.

### **Financial Impact**

Funds will be available in the 2010 repaving bonds CIP Project LE-300 with the approval of the companion ordinance amendment proposed in the separate City Council agenda item. The total cost for the contract amendments for Contracts ST-250, ST-251, ST-252, ST-253, and ST-234 is \$5,689,240.10. An additional amount of approximately \$150,000.00 from the 2010 repaving bond funds is proposed to be used for Public Works Street Maintenance for material purchases and use of overtime to help accomplish the repaving work at a reduced cost to that of the contractors.

Contracts ST-250, ST-252, ST-253, and ST-234 completion dates will be extended until December 31, 2012. ST-251 will be closed out once the final payment to Rea Construction has been completed.

Material price volatility will remain a major risk factor for the additional repaving work to be completed.

**SDBE Summary**

The Equal Opportunity/Equity Assurance Department determined that Contract ST-250 with Barnhill Contracting Company, Contract ST-251 with Rea Contracting Company, Incorporated, Contract ST-252 with Triangle Grading and Paving, Contract ST-253 with Fred Smith Company, and Contract ST-234 with Triangle Grading and Paving, Inc. were in compliance when the contract was originally awarded. These contracts will meet or exceed the goals with the additional funds.